STATE OF CALIFORNIA -- THE RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 942360001
(916) 653-5791

SEP 0 3 2009

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Attached is the Department of Water Resources (DWR) annual report to the Legislature on efforts to reduce dependency on fossil fuels, and changes to its portfolio of power contracts for both the State Water Project and the California Energy Resources Scheduling (CERS) Division. The passage of Senate Bill 85 in August 2007, which added Section (§)142 to the California Water Code, requires DWR to submit an annual report addressing the reductions in its greenhouse gas emissions related to water and energy use.

This report highlights the progress DWR has made in reducing its State Water Project emissions by investments in energy efficiency projects and plans to phase out a fossil fuel contract. It also characterizes the energy portfolio of CERS, which was created during California's 2000-2001 energy crisis in response to calls by the Governor and the Legislature for DWR to purchase power for California's Investor Owned Utilities.

If you have any questions, please contact me at (916) 653-7007 or your staff may contact Raphael Torres, Deputy Director for the State Water Project at (916) 653-8043.

Sincerely,

Lester A. Snow
Director

Attachments

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The California Department of Water Resources Report on Reducing the State Water Project's Dependency on Fossil Fuels

Introduction

The Department of Water Resources (DWR) is pleased to submit to the Legislature and to the Governor its report on the status of DWR's efforts to reduce its dependency on fossil fuels. The report is associated with the passage of Senate Bill (SB) 85 in August 2007, which added Section (§)142 to the California Water Code addressing the reductions in greenhouse gas (GHG) emissions related to water and energy use.

Specifically, §142(a) requires that, by March 1, 2008, and at least annually through 2015, DWR will report:

(1) The status of any contracts it has for fossil fuel generated electricity and its efforts to reduce its dependency on fossil fuels; and

(2) Changes to the existing energy portfolio that alters the contracts' costs, term, quantity, or composition of resources that deliver power under the contracts.

The first portion of this report focuses upon the status of the contracts and the changes to the power portfolio for the State Water Project (SWP). The second portion shows the status of DWR's California Energy Resources Scheduling Division's long-term power contract portfolio.

State Water Project Power Portfolio Overview

DWR is responsible for monitoring, conserving, and developing California's water resources, providing public safety, and preventing property damage related to water resources. The Department's mission is to ensure that all projects undertaken by DWR benefit the State and protect, restore, and enhance natural ecosystems and human environments.

DWR develops and administers a comprehensive power resources program for the strategic timing of generation and pumping schedules, purchase of power resources and transmission services, short-term sales of energy surpluses, and studies of resources for future needs. In 2007, hydroelectric generation comprised 46 percent of SWP power resources. Market based purchases and exchanges, and Reid Gardner Unit No. 4 equaled 42 percent and 12 percent, respectively. In 2008, hydrogeneration accounted for 39 percent, while portfolio purchases and Reid Gardner Unit No. 4 equaled 47 percent and 14 percent, respectively.

The SWP's energy portfolio is made up of the SWP's own hydropower resources, including the Hyatt-Thermalito Pumping-Generating complex, the SWP aqueduct's recovery plants (Gianelli, Alamo, Devil Canyon, and Warne), and the Mojave Siphon generation plant.[1] The SWP receives additional hydroelectric energy and capacity through long term agreements with the Kings River Conservation District (KRCD), the Los Angeles Department of Water and Power (LADWP), and the Metropolitan Water District (MWD). With respect to non-hydroelectric energy resources used by the SWP, under the *Reid Gardner Unit 4 Participation Agreement*, DWR receives up to 67.8 percent energy output from Reid Gardner Powerplant Unit 4.

Table 1 summarizes SWP generation capacity by plant facility, as well as the capacity associated with the energy share the SWP may receive from Reid Gardner Powerplant Unit 4.

Table 1. SWP Generation Capacity

SWP Power Plant	Capacity (MW)
Hyatt	819
Thermalito	113
Pine Flat	165
Gianelli	424
William Warne	74
Castaic	1,272
Alamo	20
Mojave Siphon	33
Devil Canyon	276
Reid Gardner Unit No. 4	275
Total Capacity	**3,471**

DWR's market purchases make up the rest of the SWP's energy portfolio, which includes two medium-term market contracts for off-peak energy.

The development of reliable, clean and renewable energy sources and the effective management of carbon are critical for national and global security, and environmental health. To mitigate climate change impacts, California shares the national and international goal of reducing GHG emissions, expanding energy efficiency programs and renewable energy resources, and implementing low-carbon fuel standards. With its diverse energy portfolio to meet California's water and energy needs, DWR is reducing its GHG emissions and fossil fuel dependency by:

[1] Gianelli Pumping-Generating Plant is a joint DWR and U.S. Bureau of Reclamation (USBR) facility; DWR's share is 222 MW; USBR's share is 202 MW.

- Maintaining a continuous balance between resources and demand on the SWP's system through: self-generation of clean hydroelectric power, load management, exchange agreements, and purchase and sales transactions. DWR analyzes SWP transactions data for trends in energy usage and emissions resulting from its legislatively mandated responsibilities.

- Coinciding with the Governor's Executive Order S-3-05 (*The Impacts of Climate Change*) and Assembly Bill 32 (AB 32 -- *The Global Warming Solutions Act of 2006*), DWR is refining its programs to quantify the SWP's operational impact on California's emissions reductions goals. DWR communicates extensively with other State departments, and other entities to ensure that its efforts are consistent with national and State legislation and policy directives, and are accurately reported.

- AB 32 mandates the reduction of California's GHG emissions to 1990 levels by 2020. DWR has defined its 1990 carbon footprint consistent with California's GHG inventory, a compilation of statewide GHG emissions and sinks.[2] The California Air Resources Board (ARB) inventory draws upon data from the *Intergovernmental Panel on Climate Change Second Assessment Report*. DWR will meet or exceed California's 2010 and 2020 benchmark emission reductions goals.

- To date, DWR applies calendar years 1990 and 2007 as reference years to quantify the SWP's carbon footprint. DWR's environmentally sensitive sustainable energy strategies are related to hydrologic data: water delivery records, SWP equipment and facilities outages, and market events that shape the SWP's water deliveries.

- DWR is investigating technologies such as combined-cycle, and combined heat and power generation to increase clean and efficient resource use by the SWP.

- The SWP's hydrogeneration resources displace energy from carbon producing generators that meet California's peak electricity demand. The SWP lowers the California Independent System Operator wholesale power grid emissions by offering clean hydroelectric generation to the market on peak hours.

- DWR is the largest individual participant in the California Demand Response Program through contracting to drop up to 200 MW of the SWP's pump load for up to 24 hours per month, from May through September each year during peak demand hours. The program reduces GHG emissions by decreasing the amount of peak generation served by inefficient, high carbon emitting resources.[3] In

[2] http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_by_ipcc_2007-11-19.xls

[3] Inefficient, high emitting "peaker" plants are generally brought on line when power demand is high, and there are no other alternatives.

2007, DWR provided for the avoidance of using 7,600 megawatt hours (MWh) of electricity during the peak summer demand. In 2008, DWR reduced its pumping load by 2,200 MWh during California's peak demand period.

- DWR invests substantial resources in engineering feasibility and design studies to implement programs that improve the overall water to energy conversion of the SWP's equipment and facilities. DWR's energy efficiency programs include pump and turbine replacements and refurbishments using state-of-the-art technologic advances to increase the SWP's hydroelectric performance. The programs substantively reduce overall carbon emissions since the hydroelectric units use less energy to move more water, and generate more power with less water.

- DWR's energy efficiency improvements at the Hyatt Generation Plant are complete. The Edmonston Pumping Plant project will conclude in 2011. DWR's preliminary estimates suggest that, upon completion, the energy efficiency programs will reduce GHG emissions by 66,000 metric tons of carbon dioxide (CO_2) annually.

- AB 32 mandates the ARB adopt compulsory regulations for reporting of statewide GHG emissions by January 1, 2008, incorporating the standards and protocols developed by the California Climate Action Registry (CCAR). DWR's voluntary membership in the CCAR, and the ARB's mandatory reporting requirements serve as consistent and transparent mechanisms to report DWR's carbon footprint. Both serve as references for DWR's strategy and future policies to meet California's emissions reductions goals. DWR's 2007 CCAR emissions report verification will be completed March 2009.

- The California Public Utilities Code §8341 requires that load-serving entities not enter into a long-term financial commitment, unless the baseload generation complies with the GHG emission performance levels established by the California Public Utilities Commission. DWR is not defined as a load-serving entity under this statute. Nevertheless, DWR will meet the intent of this legislation.[4] Since 1983, DWR has received up to 235 megawatts (MW) of energy from Unit 4 of the Reid Gardner Powerplant, a coal-fired facility in Nevada; DWR will not extend or renew the agreement upon its expiration in July 2013.

- In 2008, DWR requested nine positions to support the SWP's climate change energy activities for the fiscal year beginning July 2009. The new positions will support efforts to reduce the SWP GHG emissions, increase the percentage of renewable energy in the SWP portfolio, and track and report DWR's GHG emissions to the CCAR and to the ARB.

[4] Refer to http://law.onecle.com/california/utilities/8341.html, §8341, part (a).

Energy Required to Convey State Water Project Water

The SWP's electric power requirements are met with DWR's own and jointly developed hydroelectric facilities, and long-term and short-term purchase agreements. DWR enters into agreements so that the SWP can sell, buy, and exchange capacity or energy to promote the most efficient use of its generating resources and the scheduling of water deliveries. The SWP's energy portfolio includes:

Hydroelectric Generation: Hydropower is renewable energy, since it is "energy drawn from a source that is infinite or is replenished through natural processes. Such sources include the sun, wind, heat from the earth's core, biomass, and moving water."[5] Clean, hydroelectric generation typically provides almost half of SWP power resources.

Joint Development Agreements: In 1966, DWR contracted with the Los Angeles Department of Water and Power (LADWP) for the joint development of the Castaic Powerplant. Although part of the SWP system, the Castaic Powerplant is operated by LADWP, and electrically connected to their system at the Sylmar Substation. SWP receives capacity and energy based upon LADWP's weekly water schedules.

Contractual Arrangements: DWR takes delivery within California for energy through long-, medium-, and short-term agreements with marketers and utilities, including:

- All hydroelectric output from the run-of-river 165 MW Pine Flat Power Plant, owned and operated by the Kings River Conservation District (KRCD).
- 30 MW total capacity from five small hydroelectric plants owned and operated by the Metropolitan Water District (MWD) of Southern California.[6]
- Hydroelectric energy from MWD's off-stream facility Diamond Valley Lake Wadsworth Plant. The facility consists of 12 generators rated at 3.3 MW each.
- A 1988 Coordination Agreement, which allows DWR to purchase surplus energy from MWD's Colorado River Aqueduct system.
- 100 MW of off-peak energy through 2010, and 200 MW of off-peak energy through 2015 from two market contracts sourced primarily from natural gas.
- DWR receives energy from the Reid Gardner coal-fired generation facility in Moapa, Nevada. DWR receives up to 235 MW from Reid Gardner Unit No. 4. This contract will expire in July 2013 and will not be renewed.

[5] Refer to http://www.energy.ca.gov/2005publications/CEC-300-2005-010/CEC-300-2005-010-FS.PDF

[6] Located at Lake Mathews, Foothill Feeder, San Dimas, Yorba Linda, and Greg Avenue in the Los Angeles area.

- The SWP relies upon market contracts and exchange agreements with energy from unspecified sources. The emissions from these contracts and agreements are derived from emissions assigned to California's mix of energy resources.

The State Water Project Water 2008 Preliminary Energy Portfolio

The SWP's preliminary energy portfolio for calendar year 2008 is summarized in Table 2 (subtotals and total may exhibit minor variance due to rounding).[7]

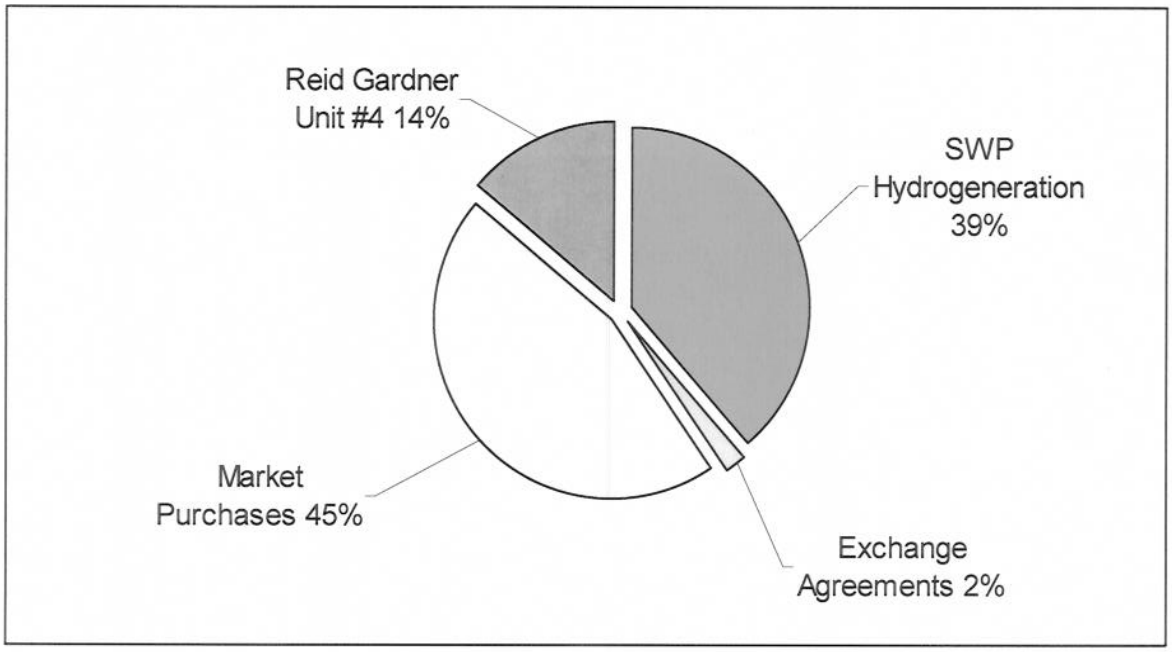
Table 2. SWP 2008 Preliminary Energy Portfolio

SWP 2008 Preliminary Energy Portfolio	
Source	**GWh**
Oroville (Hyatt-Thermalito)	1,010
Gianelli	155
Warne	316
Devil Canyon	690
Castaic	512
Alamo	67
Mojave Siphon	44
Pine Flat	203
Small Hydro	139
SWP Hydrogeneration	***3,136***
Exchange Agreements	161
Market Purchases	3,706
Purchases & Exchanges	***3,867***
Reid Gardner Unit No. 4	1,134
Non-Hydro Imports	***1,134***
Total Resources	**8,137**
Exchange Out Agreements	83
Market Sales	2,386
Sales & Exchanges	**2,469**
Total (Net) Resources	**5,668**

[7] The data is subject to change, based upon the financial settlements process, as well as the validation necessary for publication in Bulletin 132-08.

Figure 1 depicts the proportion of each resource in the SWP's energy portfolio for 2008.

Figure 1. SWP 2008 Preliminary Energy Portfolio



CO_2 Emissions Accounting Methodology

Preliminary estimates for the CO_2 emissions associated with the SWP 2008 portfolio are summarized in Table 3 below. These estimates are derived from emissions factors and guidelines cited in the CCAR's Reporting Protocols. The CCAR protocols integrate data sources from the Environmental Protection Agency (EPA), the Energy Information Administration (EIA), and the Federal Energy Regulatory Commission.

Hydroelectric, nuclear, and renewable energy have zero carbon emissions factors. SWP's purchases and exchanges from unspecified sources reflect published emissions rates for 2006 reported to the CCAR in 2007.[8] These rates are applied to the 2008 data, since updated emissions rates for calendar year 2007 will not be published by the CCAR until later this year. The Western Electricity Coordinating Council regional default factor for CO_2 Emissions in California is also used.

[8] With the exception of one counterparty whose emission rate was only available for 2005.

The Reid Gardner Unit 4 CO_2 emissions rate is retrieved from the EPA Clean Air Markets Division database.[9] The rate is applied to the energy SWP imported from Reid Gardner Unit 4 in 2008. The fourth quarter 2008 CO_2 emissions rate calculations for Reid Gardner Unit 4 are the average of the emissions rates from the first three quarters in 2008. This is because the EPA Clean Air Markets Division is not expected to publish the fourth quarter preliminary generation and emissions data until April 2009.

Table 3. SWP Energy Portfolio CO_2 Emissions in 2008

Estimated 2008 State Water Project CO_2 Emissions		
Portfolio	**GWh**	**CO_2 (Million Metric Tons)**
Energy Resources	8,137	2.53
Sales & Exchanges	2,469	0.48
Net SWP Emissions	**5,668**	**2.05**

DWR Membership in the California Climate Action Registry

To track GHG emissions associated with SWP operations and bulk power transactions using a standard mechanism, in 2007 DWR began reporting its overall energy use and GHG emissions using the CCAR's web-based Climate Action Registry Online Tool. DWR's 2007 report is based on the CCAR's General and Power/Utility Reporting Protocols; the latter addresses emissions for the electric power and utility sectors. For 2008, DWR has included in this report its preliminary energy use and emissions data. This information will be updated over the next several months as updates become available, and will ultimately be reported to the CCAR and to the ARB in mid 2009.

Phasing Out Carbon-Intensive Energy Resources

The electric power needed to operate the SWP comes from its own and jointly developed hydroelectric facilities, long-term and short-term purchase and exchange agreements, and a 30 year agreement with NV Energy (formerly known as Nevada Power Company). Since July 25, 1983, DWR has received up to 235 MW from Unit 4, one of four units at the Reid Gardner coal-fired generation facility located in Moapa, Nevada. Upon contract expiration, DWR will replace this energy with a combination of cleaner, more efficient resources, and through continuing improvements to the SWP system resources and strategies.

[9] NV Energy reports emissions to the EPA CAMD on a quarterly basis, based upon direct measurements acquired through its continuous emissions monitoring (CEM) system.

Investment in Low Emissions Technologies for the SWP

CO_2 emissions from electric power generation are influenced by the efficiency factors associated with converting fossil fuels into electricity, as well as the type of fuel used. Emissions factors associated with coal-fired generation are almost twice that of natural gas powered generation. In a typical power plant, only 30 percent of the energy is actually converted into electricity. Improvements in generation efficiency by replacing traditional power generators with more efficient technologies can result in lower CO_2 emissions. Consequently, DWR is investigating ownership interest and contractual agreements in technologies such as combined-cycle generators, and combined heat and power systems. Energy from combined-cycle gas turbines is rated for emissions that average 800 pounds CO_2 per MWh.

By the end of 2009, DWR will finalize its participation in the construction of a new, state-of-the-art combined-cycle natural gas plant. The new facility will employ advanced emission control technology, be highly efficient and replace a portion of the SWP power needs now served by coal fired generation.

SWP Operational Flexibility and Energy Efficiency Programs

Hydroelectric power plants avoid increased releases of GHGs, making a substantial contribution to diminishing emissions from fossil fuel plants. Consistent with AB 32, achieving high levels of efficiency of pumps and generators is one of many strategies DWR engages in to help California meet the GHG emission reduction goals and stabilize the costs of delivering water.

The Edmonston Pumping Plant and Edward Hyatt Powerplant are key SWP-owned hydroelectric facilities where major energy efficiency projects have been undertaken. DWR anticipates that upon completion in 2011, the two energy efficiency projects will reduce GHG emissions by 48,500 metric tons of CO_2 annually. DWR is evaluating the feasibility of additional energy efficiency upgrades at Edmonston, which would start in 2013 and extend through 2020.

Table 4 illustrates the cumulative energy savings and fossil fuel emissions equivalents associated with the energy efficiency improvements from 2003 through 2020. This table reflects the weighted average of the emissions rates from the SWP's energy portfolio.

Table 4. SWP Energy Efficiency and Emissions Reductions Years 2003 – 2020

Energy Efficiency Program	Cumulative Energy Savings (megawatt hours)		Cumulative Emissions Reductions (metric tons CO_2)		Equivalent Emissions Savings
Years	Hyatt Generation	Edmonston Pumping	Hyatt Generation	Edmonston Pumping	Automobile Equivalents
2003-2007	306,949	5,951	117,753	2,283	21,985
2008-2020	1,721,443	763,000	660,386	175,297	174,559
Total by Plant	**2,028,392**	**768,951**	**778,139**	**177,580**	**196,543**
CUMULATIVE TOTAL	**2,797 gigawatt hours**		**0.95 million metric tons CO_2**		**196,543 autos**

In 2006, DWR completed the construction of a new reservoir known as the Tehachapi East Afterbay. The reservoir provides water storage for the SWP's "Valley String" pumping plants,[10] reduces pumping during peak demand periods, and provides ancillary services to California's energy grid. The reduction in peak energy demands diminishes reliance on "peaker" plants that provide extra power during periods of peak usage, but generally not as efficient and produce higher GHG emissions.

The Tehachapi Second Afterbay may provide storage upstream to accommodate an additional small hydrogeneration unit at the Alamo Powerplant in Southern California. DWR's feasibility study on adding a second unit rated at 14 MW should be completed by the end of 2009. The schedule is contingent on obtaining studies of climate change impacts on runoff and impacts from pumping restrictions for the Delta smelt and salmon.

DWR will continue to engage in studies to increase SWP operational flexibility while decreasing pumpload demand and increasing the hydrogeneration availability.

Conclusion

DWR will continue its role as the State's third largest generator of clean hydropower. DWR is currently investigating ownership interest and contractual agreements to not only replace its coal generating resources, but also to reduce its overall dependency on fossil fuels. This can be accomplished with technologies such as combined-cycle generators and combined heat and power systems to replace the coal-based energy with a combination of cleaner, more efficient resources, improvements to the SWP system, and renewable energy resources. DWR's membership in the CCAR, as well as the ARB's reporting regulations which integrate and expand upon the CCAR's standards, will provide the vehicle for DWR to track its CO_2 and GHG emissions, evaluate its progress in meeting and exceeding California's GHG emissions reductions goals, and influence the role DWR will play in mitigating the negative affects of climate change.

[10] Dos Amigos, Buena Vista, Teerink, Chrisman, and A.D. Edmonston.

Report to the Governor and Legislature in Compliance with the Requirements of Section 142 of the Water Code

Status of California Energy Resources Scheduling Division (CERS) Long-Term Power Contract Portfolio

February 3, 2009

California Energy Resources Scheduling
Department of Water Resources

CERS Contract Overview

Number of original agreements: 58

Original portfolio projected cost: $42.5 billion

Number of agreements remaining: 26

Current projected remaining balance portfolio cost: $9.8 billion

Portion of portfolio cost that is the cost of natural gas: $4.8 billion

Changes to Portfolio

No changes to the pricing, term, quantity, or composition of resources used to provide electricity from the portfolio occurred in 2008.

On November 21, 2008 the California Public Utilities Commission issued its Decision Authorizing Measures to Facilitate Removal of Department of Water Resources from the Role of Supplying Electric Power (D.08-11-056).

The decision proposes an initial target of Jan 1, 2010 to remove DWR from all of its power contracts by having the state's investor-owned utilities (IOUs) execute replacement agreements with the counterparties.

A Working Group will be established to plan and implement protocols and strategies to conduct renegotiations of replacement contracts with the counterparties. Each IOU (along with DWR) will be responsible for negotiating replacement agreements only for the contracts allocated to them.

The CPUC will conduct its just and reasonableness (J&R) review of the replacement agreements. They are not making a determination of the J&R of the existing DWR contracts.

Summary of Current CDWR-CERS Contracts Portfolio

Contract Types	Contracts by IOU Allocation* (Contracts in Effect 2009)		
	PG&E	**SCE**	**SDG&E**
Market Resources (Fixed Price & Quantity)	Calpine 1	Goldman Sachs	Williams - Product B&C
		Williams Gas Supply Contract	Williams Gas Supply Contract
Portfolio of Resources (May also be provided from market)	Coral	Sempa	
	Pacificorp		
Unit Specific Resources (Dispatchable, except 3 wind contracts)	Calpeak (Panoche)	Colton Power	Calpeak (Border)
	Calpeak (Vaca-Dixon)	High Desert	Calpeak (El Cajon)
	Calpine 2 (Reneg.)	Mountainview Wind	Calpeak (Enterprise)
	Calpine 3	Williams D	Sunrise
	CCSF		Shell Wind Energy (Cabazon)
	GWF		Shell Wind Energy (Hill)
	KRCD		
	Wellhead (Fresno)		
	Wellhead (Gates)		
	Wellhead (Panoche)		

(*) Contracts listed as originally named, counterparties may have changed.

California Energy Resources Scheduling
Department of Water Resources

Expiration Dates of Current CDWR-CERS Contract Portfolio

Contracts in Effect 2009* (Year-end expiration unless otherwise noted)						
2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Calpine 1	**Colton Power** (Oct'-10) **Williams** (Product B,C,D) **Williams Gas**	**Calpeak(s)** (2 projects Oct-'11, 3 projects Dec-'11) **Calpine 3** (Jul'-11) **Goldman Sachs** **GWF** (Phase 1 & 2) **High Desert** (Mar-'11) **Mountview Wind** (Sept-'11) **Pacificorp** (Jun-'11) **Sempra** (Sept-'11) **Wellhead(s)** (Oct-'11)	**Calpine 2** (reneg. w/ 3-Yr option) **Coral** (Jun-'12) **GWF Ph3** (Oct-'12) **Sunrise** (Jun-'12)	**Shell Wind Energy** (Cabazon) **Shell Wind Energy** (Hill)		**Kings River** (May-'15) **CCSF**
Contract MW's Expiring (non-coincident)						
1,000	1,450	4,640	1,450	100		290

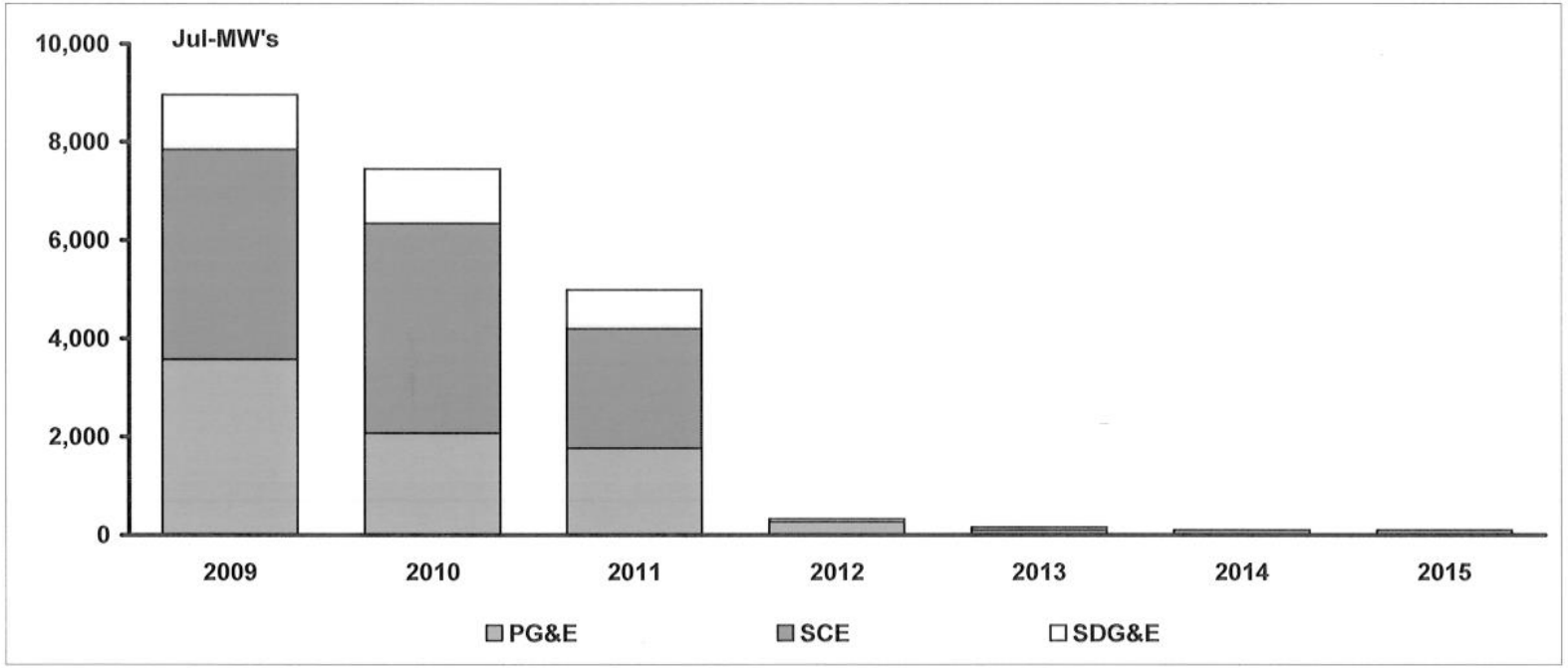
(*) Contracts listed as originally named, counterparties may have changed.

(**) MW's shown were available during all or part of the calendar year that will not be available the following year. Contract MW's expiring are non-coincident and not cumulative due to expiration date and annual MW's may vary.

California Energy Resources Scheduling
Department of Water Resources

Summary of CDWR-CERS Contract Capacity (MW's)

(By IOU Contract Allocation)

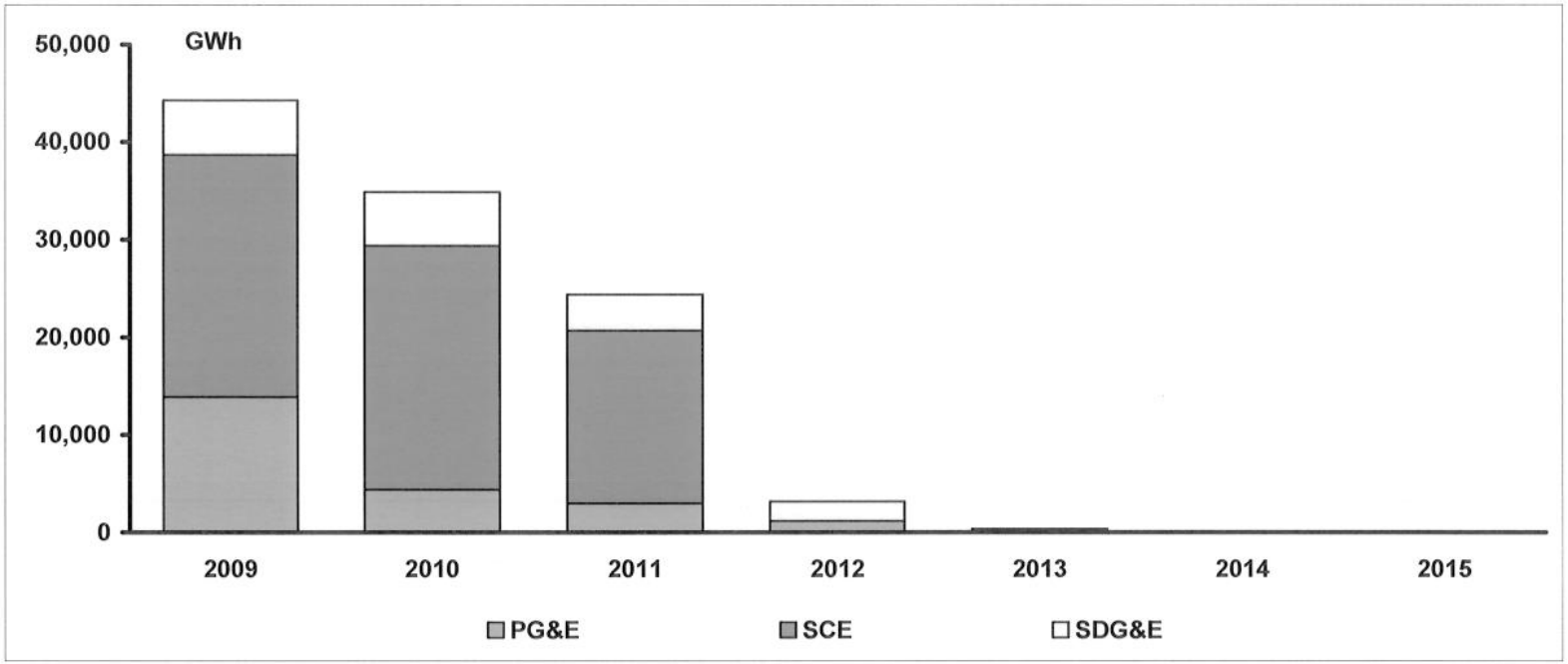


Contract Capacity (Jul-MW)	2009	2010	2011	2012	2013	2014	2015
PG&E	3,580	2,070	1,770	270	100	100	100
SCE	4,270	4,270	2,430	0	0	0	0
SDG&E	1,110	1,110	790	60	60	0	0
TOTAL	8,960	7,450	4,990	330	160	100	100

Data: CDWR-CERS revenue requirement model (PM14).

California Energy Resources Scheduling
Department of Water Resources

Summary of Contract Energy (GWh)
(By IOU Contract Allocation)

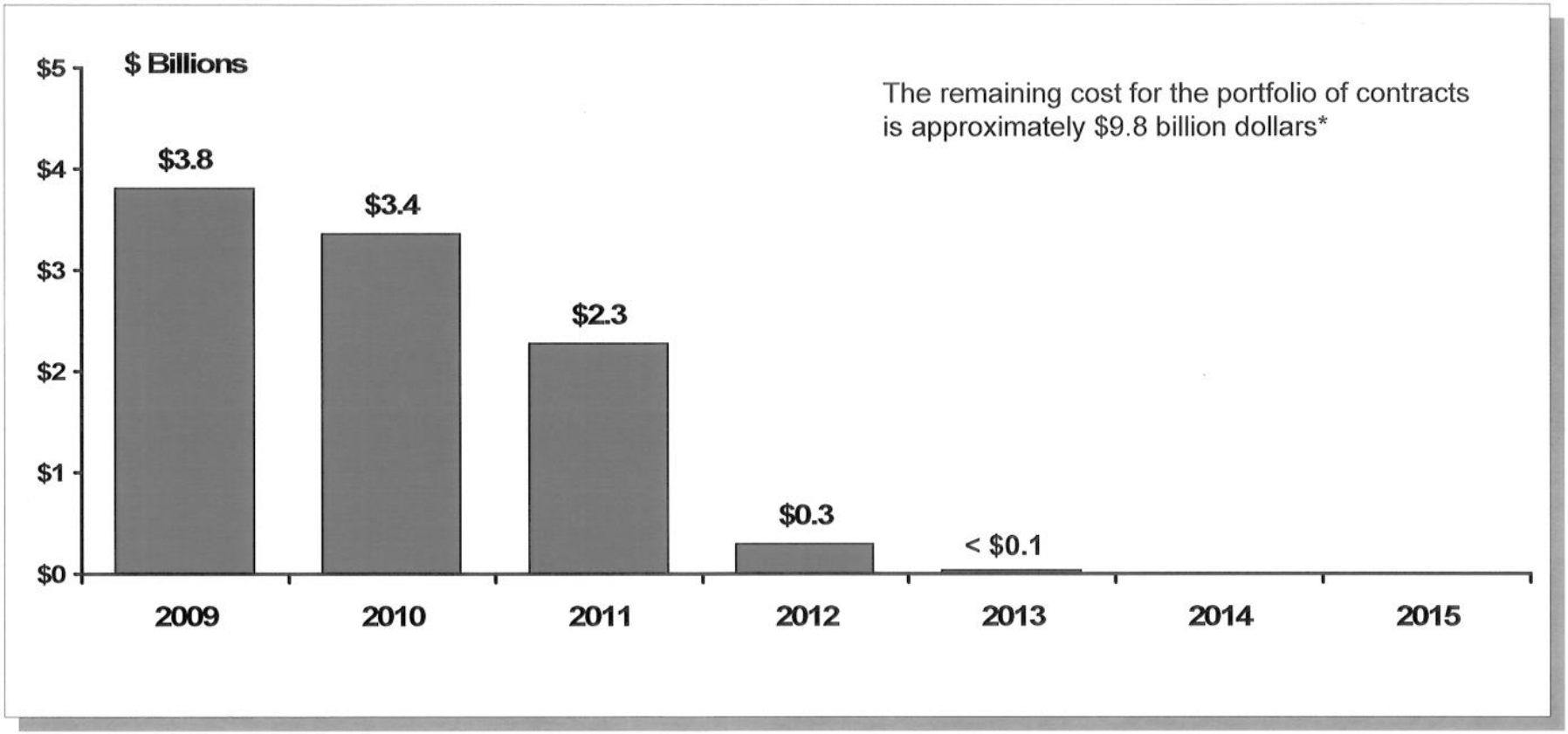


Contract Energy (GWh)	2009	2010	2011	2012	2013	2014	2015
PG&E	13,900	4,400	3,000	1,200	50	50	40
SCE	24,800	25,000	17,700	0	0	0	0
SDG&E	5,600	5,500	3,700	2,000	300	0	0
TOTAL	44,300	34,900	24,400	3,200	350	50	40

Data: CDWR-CERS revenue requirement model (PM14).

California Energy Resources Scheduling
Department of Water Resources

Summary of CDWR-CERS Contract Costs – 2009 thru 2015

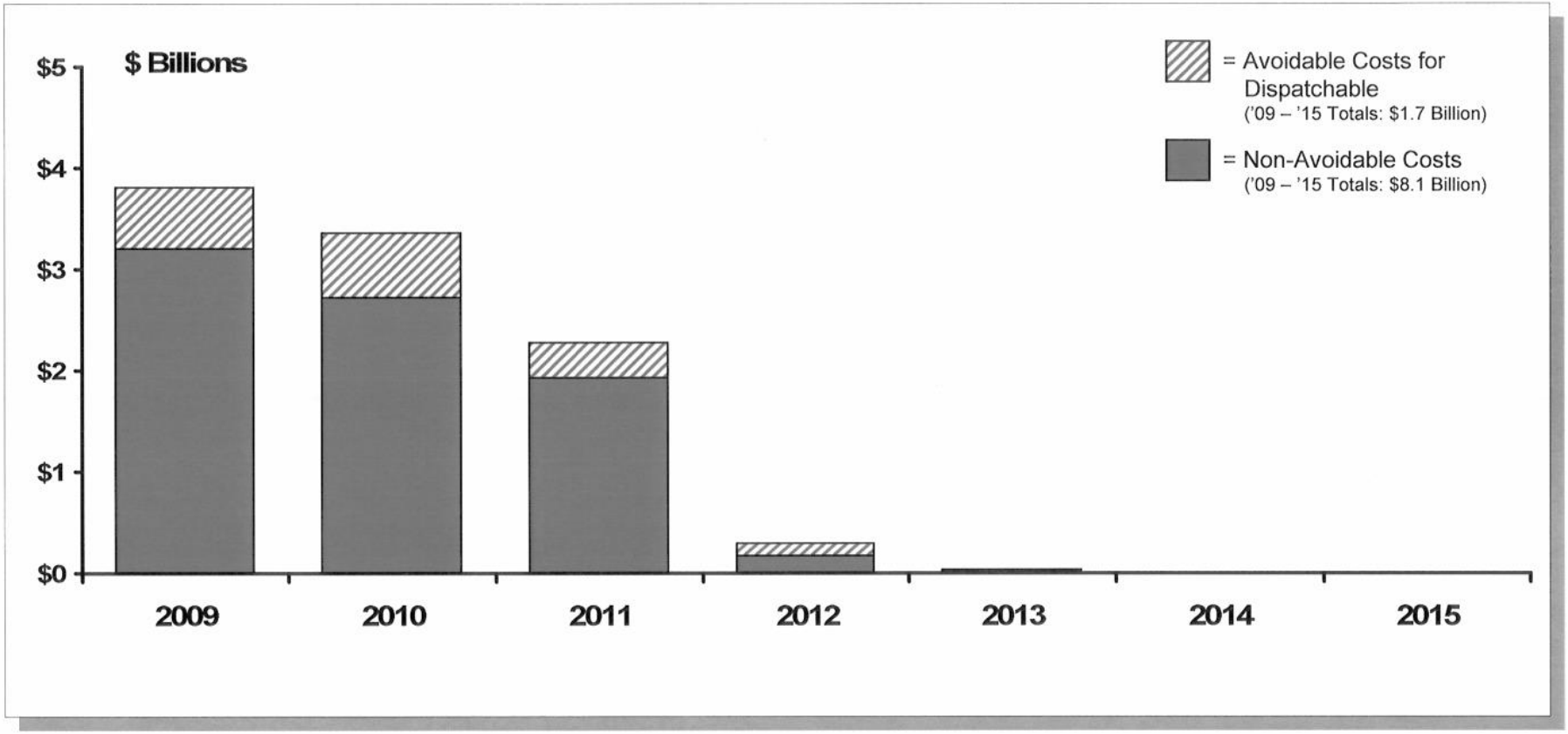


Note: Data from CDWR-CERS revenue requirement model (PM14).
(*) Annual projections may vary due to updates to gas price forecasts, contract utilization, and other assumptions.
Excludes Williams Gas Supply Contract, revenue from surplus energy sales, bond charges, reserves, and other costs.

California Energy Resources Scheduling
Department of Water Resources

Summary of CDWR-CERS Contract Costs – 2009 thru 2015 (cont.)

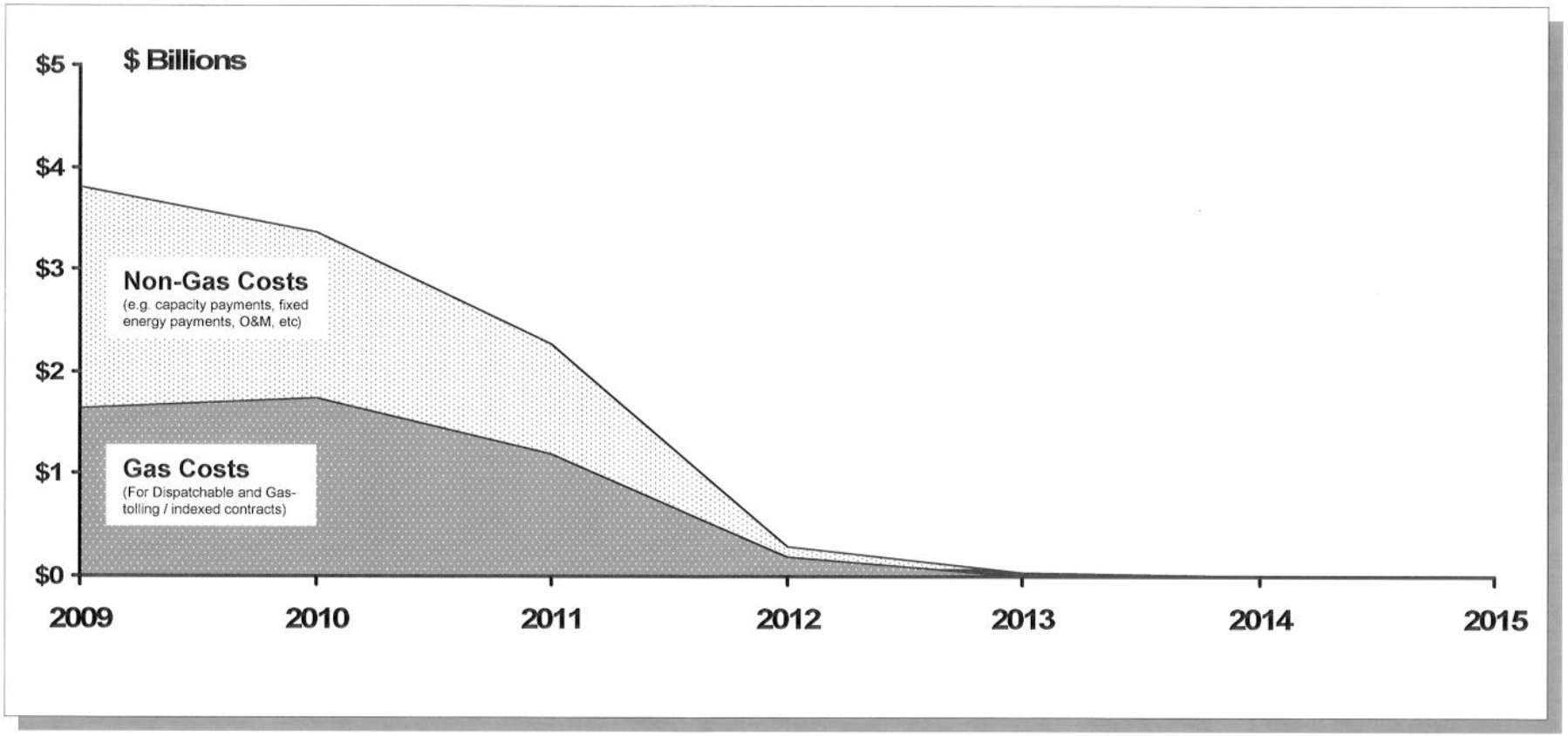
(Additional breakdown between Non-Avoidable and Avoidable Costs)



Note: Data from CDWR-CERS revenue requirement model (PM14).
(*) Annual projections may vary due to updates to gas price forecasts, contract utilization, and other assumptions.
Excludes Williams Gas Supply Contract, revenue from surplus energy sales, bond charges, reserves, and other costs.

Summary of CDWR-CERS Contract Costs – 2009 thru 2015 (cont.)

(Of the remaining $9.8 Billion contract costs, $4.8 Billion (49%) is for natural gas costs)



Note: Data from CDWR-CERS revenue requirement model (PM14).
(*) Annual projections may vary due to updates to gas price forecasts, contract utilization, and other assumptions.
Excludes Williams Gas Supply Contract, revenue from surplus energy sales, bond charges, reserves, and other costs.

California Energy Resources Scheduling
Department of Water Resources